Implementing CMMI™ in a Biometrics Testing Laboratory

W. Grant Norman, MSSE

November 18, 2003

Capability Maturity Model®, CMM®, CMM Integration, and CMMI are service marks and registered trademarks of Carnegie Mellon University

Brief History

- Analytic Services, Inc. – ANSER – was formed in 1958 as a not for profit public research corporation
- ANSER Fairmont, West Virginia office was opened in 1998
- Initial work was in the area of intelligent Internet search agents to help law enforcement locate child pornography on the web

ANSER
Analytic Services Inc.

Brief History

- Approximately 1 year later, the work extended to also investigate the use of facial recognition biometric technologies to assist law enforcement agencies
- Facial recognition expanded for use by Broward County Sheriff's Office for identifying suspects in mug-shot data base
- Work also continued on intelligent Internet search agents with US Customs

ANSER
Analytic Services Inc.

December 2002

- W. Grant Norman hired as Program Manager of Fairmont, West Virginia office
- While initial staff for ANSER Fairmont, West Virginia were mostly research scientists, by December 2002, virtually all staff were involved in software development
- Within the first two weeks, all development put on hold and planning for implementing a process model was started

ANSER
Analytic Services Inc.

January 2003

- CMMI™ discussions began with brief review of process models with software development staff
- First focus was on Configuration Management – getting all software artifacts into a version control system
- Next focus was on determining an overall implementation strategy of CMMI™
- Professional CMM® consultant brought in on 8 week contract to help with implementation plan

ANSER
Analytic Services Inc.

March 19, 2003 - CMMI™ Kick Off

- Invited various ANSER corporate management, sub-contracting organizations, and guest speakers from West Virginia University
- Official launch date of the ANSER CMMI™ implementation for software engineering and business areas
- Started on the road to Level 2 – Managed with December 31, 2003 completion goal

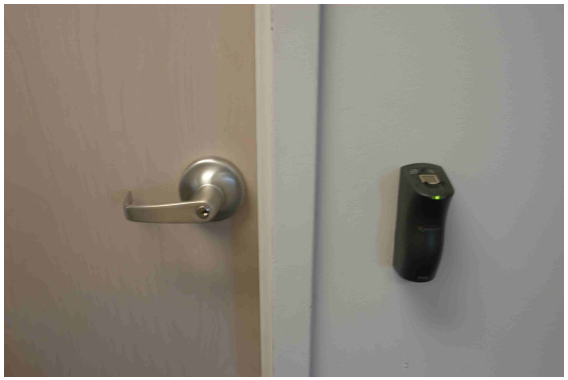
ANSER
Analytic Services Inc.

ATL – ANSER Technology Lab Opened

- June 3, 2003 – ANSER Technology Lab officially opened visited by 8 national press reporters
- Presented tours of some of the biometric technology

Iris Scanners

Hand Geometry with Proximity Scanner



Fingerprint Scanner

ANSER
Analytic Services Inc.

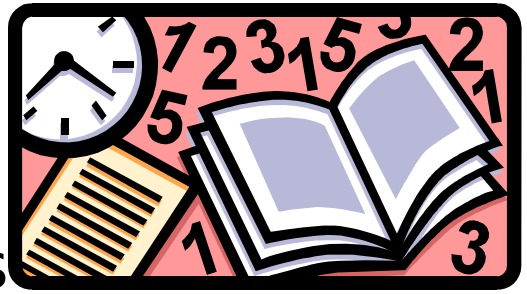
ATL – ANSER Technology Lab - Focus

- ANSER Technology Lab Initial Focus:
  - Evaluation of biometric devices and SDK's (software development kits) in an Access Control Environment
  - Multiple biometric (multi-modal) biometric device/SDK application
  - Standardize testing and evaluation process and procedures

ANSER
Analytic Services Inc.

ATL – ANSER Technology Lab - Testing

- Develop independent biometrics assessment reports
- Three types of assessment reports
  - Initial Assessment Reports
  - Scenario Assessment Reports
  - Operational Assessment Reports

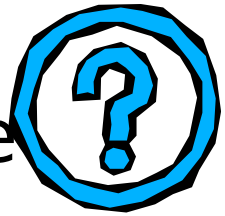


Assessment Reports

ANSER
Analytic Services Inc.

Our First Lab Report –A Brief History

- Biometrics device arrived - Test Team proceeded to take a “First Look”
- Initial review by Test Team determined the device didn’t function – immature technolo
- Test Team wrote a report to corporate detailing the “First Look”
- Corporate response: “What was the Testing Process?”



“Process?”
“We don’t need a process!”

ANSER
Analytic Services Inc.

Then What Happened…

- At request of management, we developed a Lab Test Plan
- Test plan didn’t meet our needs
  - Scope and requirements were poorly defined
- Re-wrote lab test plan
- Determined that Lab Test Plan would not be useful until scope and requirements were more clearly defined

ANSER
Analytic Services Inc.

Decision – Incorporate CMMI™ Process

- CMMI™ Processes for business activities already in place
- CMMI™ Processes for software development pro already in place
- Current CMMI™ processes were extended (where applicable) for ANSER Technology Lab
- New processes were tailored from CMMI™ (where required) for ANSER Technology Lab

ANSER
Analytic Services Inc.

Developed CMMI Instruments

Incorporating and documenting CMMI™ processe
provided a “Roadmap” for our ATL efforts

- Project Charter
- Use Case
- Requirements Specification
- Project Plan
- Risk Plan

ANSER
Analytic Services Inc.

Lessons Learned

- Processes for any business activity must be established prior to performing any activity

- CMMI™ extends well beyond software engineering

- Establishing CMMI™ principles and processes enabled our organization to perform activities that are:
  - Reliable
  - Repeatable
  - Verifiable

ANSER
Analytic Services Inc.

Continuing Lessons Learned

- Maintaining an *effective* CMMI™ managed software project, business operation, or laboratory is a *daily* process
- Established weekly CMMI™ Status Meetings with all process area managers to discuss and reassert our process efforts
- Need to continually gain buy-in from all
- Frequently, like the Whac-a-Mole® game – one area is addressed and another pops up to be smacked down

Whac-a-Mole® is a registered trademark of Bob's Space Racers, Inc.

ANSER
Analytic Services Inc.